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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,118	10/17/2003	Kenneth Douglas Vinson	9066M2	9231

27752 7590 06/08/2007

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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	**PAPER NUMBER**
1731	

MAIL DATE	DELIVERY MODE
06/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/688,118	VINSON, KENNETH DOUGLAS	
	Examiner	Art Unit	
	Dennis Cordray	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments and amendments, filed 3/26/2007, have been fully considered but have failed to overcome the prior rejection. In addition, a new rejection is presented, necessitated by the amendments.

Applicant argues that the cited prior art, Barnholtz et al, fails to teach the charge density of the high molecular weight polymer. Barnholtz et al discloses that suitable high molecular weight polymers include polyethyleneimine (PEI), which is known in the art to be a branched, high-charge-density cationic monomer. The Mini-Encyclopedia of Papermaking Wet Chemistry (topic: polyethylene imine (PEI), http://www4.ncsu.edu/~hubbe/PEI.htm) teaches that pure PEI is a branched and exceptionally high charge density polymer. The amine-containing pendant groups supply cationic charges. Pelletier et al ("Effect of Retention/Drainage Aids on Formation", BASF Corporation report) teaches that pure PEI has a charge density of 20 meq/g (p 2, Fig 5). Thus, Barnholtz et al implicitly discloses cationic polymers comprising branches (pendant groups) having the claimed charge density. Note that the Mini-Encyclopedia of Papermaking Wet Chemistry and Pelletier et al references are only cited to show a universal fact and need not be available as prior art before applicant's filing date. In re Wilson, 311 F.2d 266, 135 USPQ 442 (CCPA 1962). Such facts include the characteristics and properties of a material or a scientific truism (see MPEP § 2124).

With regard to the amount of high molecular weight polymer, the composition of Barnholtz comprises between 0.01% and 2% of the high molecular weight polymer, which overlays the claimed composition (p 33, lines 16-20).

Applicants argue that there is no teaching or suggestion to apply the composition to a semi-dry tissue paper. Application to a semi-dry paper is not claimed, thus the argument is not relevant. In any case, Barnholtz et al teaches that application of softener compositions to wet webs on the Fourdrinier cloth or on the dryer cloth (semi-dry web) has broad use in the art (p 3, lines 14-27) and has advantages and disadvantages. Barnholtz et al discloses a preferred method of application to a fully dried web so that paper strength is not lost and further drying is not needed.

The rejection is maintained.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 4, 6 and 14 recite pendant groups having a charge density of at least about 0.2 meq/g. Page 15, lines 27-28 of the original Specification recites "Substituent

or pendant groups deliver a charge density of at least about 0.2 ... meq/g." Delivering a charge density is different than having a charge density. There is no mention of the pendant groups having a charge density of at least about 0.2 meq/g. The remaining claims depend from and thus inherit the "new matter" limitation of Claims 1, 4, 6 or 14.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnholtz et al (WO 02/48458) in view of Anderson (3624019) and evidenced by The Mini-Encyclopedia of Papermaking Wet Chemistry (topic: polyethylene imine (PEI), http://www4.ncsu.edu/~hubbe/PEI.htm) and Pelletier et al ("Effect of Retention/Drainage Aids on Formation", BASF Corporation report) teaches that pure PEI has a charge density of 20 meq/g (p 2, Fig 5).

Barnholtz et al discloses an aqueous composition for softening an absorbent tissue (Abstract) comprising:

- A quaternary ammonium softening active ingredient (p 15, lines 24-25) that comprises at least 35% of the composition (p 53; claim 7);
- An electrolyte that can be present in an amount up to 25% of the composition (p 21, lines 14-15);
- A vehicle in which the softening active ingredient is dispersed, which vehicle can be water (p 20, lines 15, 23-24);

- Optionally, a plasticizer in an amount between 5% and 75% of the composition (col 19, lines 14-17);
- Optionally, a bilayer disruptor in an amount between 2% and 15% of the level of active ingredient (col 22, lines 27-28) ;
- A high molecular weight polymer, present in an amount between 0.01% and 2% of the composition (p 33, lines 16-20), which modifies the rheology of the aqueous composition (p 30, lines 10-12). Suitable high molecular weight polymers include polyethyleneimine, which is known in the art to be a branched, high-charge-density cationic monomer (having amine-containing pendant groups that supply cationic charges) (Mini-Encyclopedia of Papermaking Wet Chemistry, topic: polyethylene imine). Pelletier et al teaches that pure PEI has a charge density of 20 meq/g (p 2, Fig 5), thus cationic polymers containing pendant groups having the claimed charge density are implicitly disclosed by Barnholtz et al.

Softening agents can also include waxes, mineral oil, silicone oil, petrolatum, quaternary ammonium compounds with long alkyl chains, fatty acids, fatty alcohols and fatty esters, many of which would form oil-in-water emulsions (p 3, lines 6-13). The particularly preferred softening active ingredient is a mono or diester quaternary ammonium compound (p 16, line 24 to p 17, line 5) having the formula

$$(R_1)_{4-m} - N^+ - [(CH_2)_n - Y - R_3]_m \quad X^-$$

wherein Y is -O-(O)C-, or -C(O)-O-, or -C(O)-O-, or -NH-C(O)-, or -C(O)-NH-;

m is 1 to 3 (mono-, di- or tri-ester);

n is 0 to 4;

each R1 is a C1-C6 alkyl or alkenyl group, hydroxyalkyl group, hydrocarbyl or substituted hydrocarbyl group, alkoxylated group, benzyl group, or mixtures thereof;

each R3 is a C13-C21 alkyl or alkenyl group, hydroxyalkyl poup, hydrocarbyl or substituted hydrocarbyl group, alkoxylated group, benzyl group, or mixtures thereof; and

X- is any softener-compatible anion.

Barnholtz et al discloses tissue paper (inherently one or more plies) made using the composition that contains approximately 47% water (which borders on and can overlaps the claimed amount of less than about 45% water) (pp 39-42, Example 1).

Barnholtz et al does not disclose adding the high molecular weight polymer via a water-in-oil emulsion containing the high molecular weight polymer.

Anderson et al discloses a a method for adding a high molecular weight polymer to a continuous aqueous phase as a water-in-oil emulsion (col 1, lines 33-42, col 2, lines 12-13). The emulsion can comprise 2-75% by weight of the polymer to be commercially practical (col 3, lines 36-40). The oil to water ratio in the emulsion be from 5:1 to 1:10 as a general rule (col 2, lines 65-67). Thus the water can be present in an amount from 9% to 89% of the emulsion and the oil can be present in an amount from 9% to 81% of the emulsion. The compositional range encompasses the claimed range. Anderson teaches that inversion of the water-in-oil emulsion in water causes the high molecular weight polymer to be rapidly dispersed into the water and overcomes the problem of needing lengthy agitation times to obtain complete dissolution of the polymer (col 1,

lines 16-35). Anderson also teaches that the polymers exhibit superior thickening properties in aqueous solutions (i.e.-are rheology modifiers) and are used in papermaking processes (col 1, lines 4-9).

Anderson et al teaches that cationic, anionic or nonionic high molecular weight polymers can be rapidly dissolved into aqueous solution using a water-in-oil emulsion (col 2, lines 1-11) and that the invention is capable of rapidly providing aqueous dispersions having concentrations of 0.1 to 20% by weight of water soluble polymers, which significantly overlaps the claimed range (col 2, lines 27-30).

The art of Barnholtz et al, Anderson et al and the instant invention are analogous in that they pertain to aqueous solutions containing dispersed polymers used in papermaking processes and the problem of efficiently obtaining dissolution of a high molecular weight polymer into an aqueous solution.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a water-in-oil emulsion having the claimed composition to add the high molecular weight polymer to the softening composition of Barnholtz et al in view of Anderson et al in order to rapidly disperse the high molecular weight polymer in the aqueous solution.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRC

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